Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-215. **(Canceled)**

216. **(Currently Amended)** A diffractive multifocal intraocular lens comprising:

a first surface and a second surface, said second surface opposes said first surface, said first surface having a first shape and said second surface having a second shape;

where said first surface includes a diffractive pattern imposed on said first shape;

wherein said intraocular lens provides a base focus and an additional focus, the base focus associated with a far viewing distance and far aberration characteristics, the additional focus comprising the base focus adjusted with a diffractive power of the diffractive pattern, the additional focus associated with a near viewing distance and near aberration characteristics;

the near aberration characteristics of the intraocular lens and the far aberration characteristics of the intraocular lens each comprising ~~the intraocular lens having~~ a negative spherical aberration~~; and wherein~~ defined by at least one of said first shape and said second shape ~~has an aspheric component configured to reduce, for at least one of said base focus and said additional focus~~ such that when the intraocular lens is in the context of an eye, the eye having a cornea with near aberrations associated with the near viewing distance and far aberrations associated with the far viewing distance, the far aberrations being different than the near aberrations, the intraocular lens mitigates;~~,~~

a far positive spherical aberration of a wavefront induced by transmitting visible light at 50 cycles/mm from the far viewing distance and through the cornea, when the wavefront is passing through said intraocular lens, so as to provide a far modulation transfer function (MTF), and

a near positive spherical aberration of a near wavefront induced by transmitting visible light at 50 cycles/mm from the near viewing distance and through the cornea, when the near wavefront is passing through said intraocular lens, so as to provide a near MTF,

a sum of the far MTF and the near MTF being above 0.5.

217. – 218. **(Canceled)**

219. **(Previously Presented)** The intraocular lens of claim 216 wherein said intraocular lens is structured so that, when said wavefront is represented as a series of Zernike polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said intraocular lens.

220. **(Previously Presented)** The intraocular lens of claim 219 wherein said series of Zernike polynomials comprises a fourth order term.

221. -224. **(Canceled).**

225. **(Previously Presented)** The intraocular lens of claim 216 wherein a light distribution between said base focus and said additional focus is between 70%:30% to 30%:70%.

226. **(Previously Presented)** The intraocular lens of claim 216 wherein a light distribution between said base focus and said additional focus is 50%:50%.

227. **(Previously Presented)** The intraocular lens of claim 216 wherein one of said first shape and said second shape is spherical.

228. **(Previously Presented)** The intraocular lens of claim 216 wherein said intraocular lens is designed to reduce wavefront aberrations of light passing into the eye when said intraocular lens has replaced a natural lens of an eye.

229-232. **(Canceled).**

233. **(Previously Presented)** The intraocular lens of claim 216 wherein said intraocular lens is designed to replace a natural lens of an eye.

234. – 235. **(Canceled)**

236. **(Previously Presented)** The intraocular lens of claim 216 wherein said lens defines an optical axis, and at least one of said first shape and said second shape has a curvature at a periphery thereof that is less than a curvature at said optical axis.

237. **(Canceled)**

238. **(Currently Amended)** The intraocular lens of claim 216 wherein said at least one of said first shape and said second shape is characterized by a mathematical model that includes at least one of (1) terms of a conoid of rotation <u>or</u> ~~and~~ (2) terms of a conoid of rotation and at least one polynomial term.

239. **(Previously Presented)** The intraocular lens of claim 238 wherein said terms of said conoid of rotation include a conic constant that is less than zero.

240. **(Previously Presented)** The intraocular lens of claim 238 wherein said terms of said conoid of rotation include a conic constant that is less than minus one.

241. **(Previously Presented)** The intraocular lens of claim 216 wherein said at least one of said first shape and said second shape is a modified conoid surface.

242. **(Previously Presented)** The intraocular lens of claim 216 wherein said at least one of said first shape and said second shape is characterized by a mathematical model that includes terms of a conoid of rotation and a polynomial term.

243. **(Previously Presented)** The intraocular lens of claim 242 wherein said intraocular lens is structured so that, when said wavefront is represented as a series of Zernike

polynomials, a Zernike Z11 term describing said wavefront is reduced when said wavefront passes through said intraocular lens.

244. **(Currently Amended)** The ~~A diffractive multifocal~~ intraocular lens of claim 216, wherein the negative spherical aberrations are each defined by ~~comprising:~~

~~a first surface and a second surface, said second surface opposing said first surface, said first surface having a first shape and said second surface having a second shape,~~ at least one of the surfaces, which, when expressed ~~being expressible~~ as a linear combination of Zernike polynomial terms, comprises an 11th term of a fourth order Zernike coefficient of the Zernike polynomial terms having a negative value~~;~~

~~wherein said first surface includes a diffractive pattern imposed on said first shape;~~

~~wherein said intraocular lens provides a base focus and an additional focus~~; and

wherein said intraocular lens is configured such that, when a wavefront expressible by a Zernike polynomial passes through said intraocular lens, said intraocular lens reduces a positive rotationally symmetric fourth order Zernike term of said Zernike polynomial of said wavefront.

245.-273 **(Canceled)**

274. **(Previously Presented)** The intraocular lens of claim 216 wherein the positive spherical aberration is produced by an aspheric cornea having an aspheric corneal surface.

275. **(Previously Presented)** The intraocular lens of claim 274 wherein the aspheric corneal surface is characterized by an equation having a conic constant of the corneal surface, the conic constant having a value between -1 and 0.

276. **(Previously Presented)** The intraocular lens of claim 274 wherein the aspheric corneal surface is characterized by an equation having a conic constant of the corneal surface, the conic constant having a value of -0.26.

277. **(Previously Presented)** The intraocular lens of claim 244 wherein the Zernike coefficient of the at least one surface is configured to balance a positive value of a corresponding coefficient term of a Zernike polynomial that characterizes the cornea.

278. **(New)** The intraocular lens of claim 216, wherein the eye comprises a model eye.

279. **(New)** The intraocular lens of claim 278, the eye having a variable pupil aperture, wherein the cornea has a surface with a conic constant of about -0.05 for an aperture size of the pupil of about 4 mm, and wherein the conic constant is about .18 for an aperture size of the pupil of about 7 mm.

280. **(New)** The intraocular lens of claim 216, wherein the eye comprises an average eye of a population of patients.

281. **(New)** The intraocular lens of claim 280, wherein the population of patients comprises a population of cataract patients.

282. **(New)** The intraocular lens of claim 216, the eye being an eye of a particular patient, wherein the negative spherical aberrations of the intraocular lens correspond to, and are different in sign than, measured spherical aberrations of the eye while the eye comprises an aphakic eye.

283. **(New)** The intraocular lens of claim 216, wherein far image quality of the lens in the context of the eye at the far viewing distance and near image quality of the lens in the context of the eye at the near viewing distance are sufficient to reduce reading spectacle dependency.

284. **(New)** The intraocular lens of claim 216, wherein the sum of the far MTF and the near MTF is 0.6.

285. **(New)** The intraocular lens of claim 216, wherein the far MTF and the near MTF are both at least 0.2.

286. **(New)** The intraocular lens of claim 216, wherein the far MTF and the near MTF comprise monochromatic MTFs of 0.3 or more.

287. **(New)** The intraocular lens of claim 216, wherein the far MTF and the near MTF comprise polychromatic MTFs of 0.23 or more.

288. **(New)** The intraocular lens of claim 216, wherein the far MTF and the near MTF comprise polychromatic MTFs of 0.29 or more.

289. **(New)** The intraocular lens of claim 216, wherein:

the negative spherical aberrations are defined by a refractive aspherical component of the second surface;

the eye further comprises a pupil that varies in size; and

the negative spherical aberrations of the far aberration characteristics correspond to the aspherical component of the second surface at a first pupil size and mitigate the far positive spherical aberration of the wavefront induced from the far viewing distance; and

the negative spherical aberrations of the near aberration characteristics correspond to the aspherical component of the second surface at a second pupil size and mitigate the near positive spherical aberration of the wavefront induced from the near viewing distance.